Amendments to the Claims:

Please replace all prior versions, and listings of claims in the application with the following listing of claims.

Listing of claims

Claim 1 (original): A method for determining which setting of a plurality of device input compensation settings provides a minimum of unwanted signal at an output of the device, comprising:

a) applying a signal to an input of the device;

b) setting the device to a first one of the plurality of device input compensation settings;

c) measuring unwanted signal level at the first compensation setting;

d) determining a first distance from the first compensation setting to a calibration setting resulting in minimum unwanted signal level based on the first measured level and a predetermined characteristic of the unwanted signal;

e) setting the device to a second one of the plurality compensation settings;

f) measuring unwanted signal level at the second compensation setting;

g) determining a second distance from the second compensation setting to the calibration setting based on the second measured level and the predetermined characteristic; and

h) determining the calibration setting based on the first and second settings and the first and second distances.

Claim 2 (original): The method according to claim 1, comprising:

comparing the first measured level with a predetermined threshold value, and if the first measured level is less than or equal to the predetermined threshold value, then preventing the performance of steps d) though h) and selecting the calibration setting to be the first setting.

Claim 3 (original): The method according to claim 2, comprising:

comparing the second measured level with the predetermined threshold value, and if the second measured level is less than or equal to the predetermined threshold value, then

preventing the performance of steps g) and h) and selecting the calibration setting to be the second setting.

Claim 4 (original): The method according to claim 1, wherein the predetermined characteristic is a gradient corresponding to a change in unwanted signal level per change in calibration setting.

Claim 5 (original): The method according to claim 4, wherein the predetermined characteristic of the unwanted signal is determined by applying a signal to an input of the device and measuring a change in unwanted signal between adjacent compensation settings.

Claim 6 (original): The method according to claim 4, wherein the characteristic is determined by the device design.

Claim 7 (original): The method according to claim 1, comprising saving the determined calibration setting.

Claim 8 (original): The method according to claim 1, comprising verifying that the selected calibration setting is an acceptable calibration setting.

Claim 9 (original): The method according to claim 8, wherein verifying further comprises:

measuring a level of unwanted signal at the selected calibration setting; and

comparing the measured value at the selected setting with a predetermined threshold level.

Claim 10 (original): The method according to claim 9, further comprising saving the measured unwanted signal level and the selected calibration setting.

Claim 11 (original): The method according to claim 1, further comprising:

i) setting the device to a third compensation setting not previously measured;

j) measuring unwanted signal level at the third compensation setting;

k) determining a third distance from the third compensation setting to the calibration setting based on the third measured level and the predetermined characteristic; and

l) determining the calibration setting in h) based on the first through third settings and the first through third distances.

Claim 12 (original): The method according to claim 11, comprising:

comparing the third measured level with a predetermined threshold value, and if the third measured level is less than or equal to the predetermined threshold value, then selecting the third setting as the calibration setting and then preventing the performance of steps k) and l).

Claim 13 (original): The method according to claim 11, comprising verifying whether the determined calibration setting in l) is an acceptable calibration setting.

Claim 14 (original): The method according to claim 11, wherein the first and second compensation settings are selected to have a common compensation amount in one dimension of compensation and the third compensation setting is selected to have a compensation amount in the one dimension different from the common compensation amount.

Claim 15 (original): The method according to claim 1, wherein if the distance determined in d) is greater than a maximum allowable distance from the first setting, then rejecting the device and preventing performance of steps e) through h).

Claim 16 (original): The method according to claim 1, wherein if the distance determined in g) is greater than a maximum allowable distance from the second setting, then rejecting the device and preventing the performance of step h).

Claim 17 (original): The method according to claim 1, wherein the device input compensation settings are adjustable to vary compensation in two dimensions.

Claim 18 (original): The method according to claim 17, wherein each setting corresponds to at least one type of compensation selected from DC offset, phase difference, and amplitude imbalance.

Claim 19 (original): The method according to claim 17, wherein the device is an in-phase (I) and quadrature-phase (Q) modulator, and the two dimensions of each setting correspond to compensation for a signal on an I channel and a Q channel, respectively, of the modulator.

Claim 20 (original): The method according to claim 17, wherein the device is an in-phase (I) and quadrature-phase (Q) modulator and each dimension of compensation compensates for imbalances between an I channel signal and a Q channel signal of the modulator.

Claim 21 (original): The method according to claim 20, wherein one dimension corresponds to a phase imbalance between the I channel signal and the Q channel signal.

Claim 22 (original): The method according to claim 20, wherein one dimension corresponds to an amplitude imbalance between the I channel signal and the Q channel signal.

Claim 23 (original): The method according to claim 19, wherein a first dimension corresponds to compensating DC applied to the I channel and a second dimension corresponds to compensating DC applied to the Q channel.

Claim 24 (original): The method according to claim 17, wherein the compensation settings comprise a grid of compensation settings.

Claim 25 (original): The method according to claim 24, wherein the first compensation setting is selected from a setting at a corner of the grid.

Claim 26 (original): The method according to claim 25, wherein the second compensation setting is selected from a setting at a corner of the grid having an amount of compensation in one dimension in common with the first compensation setting.

Claim 27 (original): The method according to claim 24, wherein a center setting of the grid is selected as the first compensation setting.

Claim 28 (original): The method according to claim 1, wherein determining the calibration setting further comprises:

i) calculating a sum of distance errors for each compensation setting not measured, each said sum being based on difference between a determined distance and a distance between a measured setting and a non measured setting; and

j) selecting a setting having the lowest sum of distance errors.

Claim 29 (original): The method according to claim 28, further comprising:

k) measuring unwanted signal level at the selected setting having the lowest distance error; and

l) comparing the unwanted signal level measured in k) with a predetermined threshold value to verify that the selected setting is an acceptable calibration setting.

Claim 30 (original): The method according to claim 29, wherein if it is verified that the selected setting is not acceptable and a different setting has an associated lowest distance error equal to the distance error of the unacceptable calibration setting, the different setting is selected.

Claim 31 (original): The method according to claim 30, further comprising repeating k) and l) for the different setting.

Claim 32 (original): The method according to claim 29, wherein if it is verified that the selected setting is not acceptable, the method further comprises:

m) setting the device to a setting not previously measured and having a next lowest distance error;

n) repeating i) through l) for the setting having the next lowest distance error; and

o) repeating m) through n) until an acceptable calibration setting is verified or for a predetermined number of repetitions, whichever occurs first.

Claim 33 (original): The method according to claim 1, wherein the unwanted signal comprises local oscillator leakage.

Claim 34 (original): The method according to claim 1, wherein the unwanted signal comprises unwanted sideband for a single sideband signal.

Claim 35-58 (canceled)

Claim 59 (currently amended): ~~The apparatus of claim 55,~~ Apparatus for determining which setting of a plurality of device input compensation settings provides a calibration setting of minimum of unwanted signal at an output of the device, comprising:

a signal generator for generating a test signal supplied to an input of the device;

means for setting the device to one of a plurality of device input compensation settings;

means for measuring a level of unwanted signal output from the device; and

a processor for determining, for each measured compensation setting, a corresponding distance from the measured compensation setting to a calibration setting resulting in minimum unwanted signal level, said determination being based on the measured level of the unwanted signal and a predetermined characteristic of the unwanted signal, and for determining the calibration setting based on the measured settings and the determined distances,

wherein the processor is further configured for calculating a sum of distance errors for each compensation setting not measured, each said distance error being based on difference between a determined distance and a distance between a measured setting and a non-measured setting.

Claim 60 (original): A computer-readable medium containing a program which executes the steps of:

a) applying a signal to an input of the device;

b) setting the device to a first one of a plurality of device input compensation settings;

c) measuring unwanted signal level at the first compensation setting;

d) determining a first distance from the first compensation setting to a calibration setting resulting in minimum unwanted signal level based on the first measured level and a predetermined characteristic of the unwanted signal;

e) setting the device to a second one of the plurality compensation settings;

f) measuring unwanted signal level at the second compensation setting;

g) determining a second distance from the second compensation setting to the calibration setting based on the second measured level and the predetermined characteristic; and

h) determining the calibration setting based on the first and second settings and the first and second distances.

Claim 61 (original): The computer program of claim 60 further comprising the executable steps of:

comparing the first measured level with a predetermined threshold value, and if the first measured level is less than or equal to the predetermined threshold value, then preventing the performance of steps d) though h) and selecting the calibration setting to be the first setting.

Claim 62 (original): The computer program of claim 60 further comprising the executable steps of:

comparing the second measured level with the predetermined threshold value, and if the second measured level is less than or equal to the predetermined threshold value, then preventing the performance of steps g) and h) and selecting the calibration setting to be the second setting.

Claim 63 (original): The computer program of claim 60 further comprising the executable step of verifying that the selected calibration setting is an acceptable calibration setting.

Claim 64 (original): The computer program of claim 63 further comprising the executable steps of:

measuring a level of unwanted signal at the selected calibration setting; and

comparing the measured value at the selected setting with a predetermined threshold level.

Claim 65 (original): The computer program of claim 64 further comprising the executable step of saving the measured unwanted signal level and the selected calibration setting.

Claim 66 (original): The computer program of claim 60 further comprising the executable steps of:

i) setting the device to a third compensation setting not previously measured;

j) measuring unwanted signal level at the third compensation setting;

k) determining a third distance from the third compensation setting to the calibration setting based on the third measured level and the predetermined characteristic; and

l) determining the calibration setting in h) based on the first through third settings and the first through third distances.

Claim 67 (original): The computer program of claim 66 further comprising the executable steps of:

comparing the third measured level with a predetermined threshold value, and if the third measured level is less than or equal to the predetermined threshold value, then selecting the third setting as the calibration setting and then preventing the performance of steps k) and l).

Claim 68 (original): The computer program of claim 66 further comprising the executable step of verifying whether the determined calibration setting in step l) is an acceptable calibration setting.

Claim 69 (original): The computer program of claim 60, wherein if the distance determined in step d) is greater than a maximum allowable distance from the first setting, then rejecting the device and preventing performance of steps e) through h).

Claim 70 (original): The computer program of claim 60, wherein if the distance determined in step g) is greater than a maximum allowable distance from the second setting, then rejecting the device and preventing the performance of step h).

Claim 71 (original): The computer program of claim 60, wherein determining the calibration setting further comprises the executable steps of:

i) calculating a distance error for each compensation setting not measured based on the measured settings and the determined distances; and

j) selecting a setting having the lowest distance error.

Claim 72 (original): The computer program of claim 71, further comprising the executable steps of:

k) measuring unwanted signal level at the selected setting having the lowest distance error; and

l) comparing the unwanted signal level measured in k) with a predetermined threshold value to verify that the selected setting is an acceptable calibration setting.

Claim 73 (original): The computer program of claim 72, wherein if it is verified that the selected setting is not acceptable and a different setting has an associated lowest distance error equal to the distance error of the unacceptable calibration setting, the different setting is selected.

Claim 74 (original): The computer program of claim 73, further comprising repeating k) and l) for the different setting.

Claim 75 (original): The computer program of claim 72, wherein if it is verified that the selected setting is not acceptable, the program further comprises the executable steps of:

m) setting the device to a setting not previously measured and having a next lowest distance error;

n) repeating i) through l) for the setting having the next lowest distance error; and

o) repeating m through n until an acceptable calibration setting is verified, or for a predetermined number of repetitions, whichever occurs first.